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The problem which each must propose to himself, immediately, as he reaches philosophy, is, To trace out the one true, absolute knowledge of the absolute to its totality, and to the perfect comprehension of all in one. Philosophy opens, in the absolute and the removal of all contradictions, whereby this itself is again transformed into a limitation in a subjective or objective way, not only the realm of ideas but the true primitive source of all knowledge of nature, which is the only workshop of ideas.

I have shown the final determination of the modern world in the preceding to be the representation of a higher, all comprehensive unity, which is as valid for science as for art, and in order that it may exist, all antithesis must be dissolved.

Until now we have spoken of the inner antithesis in philosophy self. I shall be obliged to mention several external ones which have been caused by one-sidedness, false tendency of the time and imperfect ideas.

THE TRUE AND THE FALSE IN DARWINISM.

[A Critical Representation of the Theory of Organic Development. By EDWARD VON HARTMANN. Berlin: 1875].

Translated from the German by H. J. D'ARCY.

I. DARWINISM IN THE PRESENT.

Darwinism, undoubtedly, occupies a prominent place among the objects of present interest to the human mind. The principal works of Darwin and of Haeckel have gone through several editions, numberless popular productions are actively engaged in extending the new doctrine; and the scientific and popular discussions of the question in books and journals fill an almost inconceivable space. On the whole, there is observable a rapid advance, during the last eight years, of this method of looking at questions, though it at first had encountered universal distrust; and perhaps nothing has contributed so much to this advance as the zeal with which the theologians of all creeds, and the professors of the established philosophy hastened to oppose it. This

opposition, which was based upon most insufficient and unscientific grounds, called forth advocates all the more spirited, the boldest of whom deduced consequences which Darwin had but cautiously hinted at, or designedly suppressed. By reason of this the opposition became, naturally, still more inflamed. Materialism, at the same time, did not fail to utilize Darwinism for its own purpose; and David Strauss showed by the manner in which he incorporated it with the confession of his new faith, how influential this new way of regarding things had become, even in circles which one would have thought protected from materialistic thoughtlessness, by their philosophic training.

Even among natural philosophers the feeling irresistibly gained ground that the new theories could not be successfully opposed from the old standpoint, and that the new standpoint must in some way be adopted. Those of the learned, however, who, by reason of their advanced age, no longer possessed a mind capable of unlearning, set themselves unreservedly against the Darwinian tenets. The impartial thinkers who sought to separate the true from the false in the new doctrine, were extremely few, and their voices were lost in the din created by enthusiastic disciples and embittered opponents. Surely the power to call forth both may serve as evidence that in a given theory are mixed the relatively true and the relatively false; that significant, fruitful, and fascinating ideas are to be found side by side with those that are incomplete, and to that extent inaccurate.

The task of the philosopher consists in recognizing one-sidedness as such, and in eliminating the errors which spring from regarding one side as the whole, a partial justification as a full one, and from overvaluing an explanatory principle, valid within certain limits, when applied beyond these limits. This task I have already sought to perform with regard to Darwinism, in the first edition of my "*Philosophy of the Unconscious*," which appeared in the end of 1868. Therein I represented the theory of descent as the one undoubtedly correct, and as the part of Darwinism calculated to be the rallying point in the struggle. I even incorporated it as a part of my system, while I pointed out that the theories of natural and sexual selection were principles overprized, and of limited applicability. (First Ed., pp. 493-494, 497, 503, 223-225; sixth edition, pp. 596, 602-610, 248-250). The most important objection made by me, one borrowed from the botanist Naegeli, was that natural selection could not affect morphologi-

cal structure relations, but merely the adaptability of organs to certain physiological functions, while the distinction between species the origin of which Darwin undertook to explain by his theory of selection, is essentially of a morphological nature; and all advance to a higher grade of organization depends upon a morphological change. Darwin has, however, since then, found himself obliged to recognize the validity of this objection, and to admit that he had attributed too much to the influence of natural selection, as this can only extend to what may be physiologically useful, and not to the countless morphological features which have no bearing upon physiological functions. ("Descent of Man," German by Carus, second edition.) He has also acknowledged this "very great mistake" in the revision of the fifth English edition of his principal work (cf. the fifth German edition, pp. 237-239); yet he has failed to draw from this the conclusion that the very title of this work, "The Origin of Species by Natural Selection," is inaccurate; for the morphological features, which from a physiological point of view are of no significance, are the most important and decisive as to the type of a species; therefore one cannot consistently speak of an explanation of the origin of species, by a principle which does not explain what most needs explanation. This obvious consequence Darwin has evaded by increased emphasis on ancillary principles, which, however, as we shall see, lead to a view fundamentally opposed to that from which the principle of selection sprang.

Thus much, at least, is evident from what has preceded, that the hypotheses, principles and theories collected under the name of Darwinism are in pressing need of an analytical examination, if the confusion which reigns in this domain is not to involve forever the highly important problems which are here treated of, in a mist impenetrable to the ordinary understanding of the so-called cultivated public. It is high time that people should cease to regard Darwinism as a complete whole, and to use the conclusive evidence of the descent theory in behalf of a cluster of theories which are related only in the common tendency to put the sum of external, accidental and mechanical influences, in the place of an internal, systematic and organic development. The theory of descent, as such, is quite consistent with either a mechanical or an organic development of the world, with either a materialistic, pantheistic or theistic one; and this fact would serve as an additional and weighty recommendation of it to the unprejudiced

consideration of all classes, if it did not present itself wrapped up in Darwinism with the principle of selection. It is only against the mechanical way of looking at the world, involved in the principle of selection, when this latter is regarded as alone a sufficient explanation, that all the attacks upon Darwinism are directed. And these only affect the theory of descent, as brilliantly re-introduced by Darwin, because the opponents of the Darwinians believe, without criticism, in the indissoluble unity of both theories. On the other hand, many are induced by the obvious truth of the theory of descent, to adopt the theory of selection and its mechanical views into the bargain, because they cannot separate these different elements of Darwinism. The impassioned defenders of Darwinism also struggle against the necessary separation, because they seek the chief power of the theory of nature maintained by them, in its presenting a perfect whole in which no gaping clefts are to be found, and at least not such as offer a prospect of ever being filled up except by metaphysics.

In order, then, to be able to offer an apparent whole, which also corresponds with the present superficial tendency toward the mechanical, they seek to make good the pretension, long ago shown to be unfounded, that the theory of selection, in connection with auxiliary mechanical principles, is in a position to fully explain the process of development by organic nature which we see around us. In this they disregard that hitherto approved modesty in the natural sciences which consists in a limitation of the efforts to explain, to that which is actually explicable by the means derived from natural science; and imitate in this disregard the philosophy so often blamed by the students of nature for the transgression of its limits, without even bringing to their undertaking a true philosophical standpoint. In truth, however, the questions which are at bottom involved, belong not to science but to philosophy; it therefore seems that philosophy, as such, not only has a right but is under an obligation to take part in their discussion. To this may be added that the result of this dispute is of the highest practical importance. For the antagonism of the old systems of natural philosophy culminated in the question as to the origin and development of the organic kingdom on earth, some regarding this development in a mechanical and materialistic way, others in an organic and ideal; and as the decision will be in favor of the one or the other view, so will be

for the near future the triumph of materialism or idealism ; and it is obvious that the triumph of either will, for some time at least, lead civilized people, in their solidaric union, in a direction quite different from that in which they would be lead by the triumph of the other.

Therefore the more important the consequences that flow from the solution of the problems taken up by Darwinism, and the more general the recognition which the theory of descent has in late years won for itself in other quarters, the more pressing is the necessity to separate it from the other elements of Darwinism which are of more doubtful worth. It is therefore a matter of congratulation that the botanist, Prof. Wigand of Marburg, has undertaken the task of analytically examining and critically testing Darwinism in all directions, with German industry, German thoroughness, and, of course, also with German timidity. This work goes, in several respects, beyond the mark, and thereby exposes many weak places to its opponents ; it clings fast to the constancy of species, in my opinion, a lost cause ; it under-rates the influence of the struggle for existence, and of sexual selection, perhaps to the same extent as Darwin overrates it ; and finally it brings into an examination of the science of nature theistic doctrines, which would be entirely foreign thereto, even if they were maintained in a much more philosophic manner than is here the case ; and it omits a philosophic examination, undoubtedly pertinent, as to the existence of the internal law of development, which it justly raises to the rank of an universal principle of organic nature. However, it is the first work, as far as I know, in the German language, which represented and criticized Darwinism in its whole extent, with full knowledge of details and great logical acuteness, and subjected to thorough critical treatment every principle of Darwinism which, not involved in the theory of descent or the theory of development, could serve to establish a purely mechanical view of organic nature. I believe that, in this sense, I may characterize it as the monument which marks the limits, beyond which the influence of Darwinism in Germany has not extended.

When Wigand's critical depreciation of Darwinism is reduced to its proper measure, by an impartial course of objective testing, and the untenable hypotheses introduced by him are eliminated, it will be seen that the golden mean between Darwinism and its latest opponent agrees substantially with the position

taken by me in the "Phil. d. Unb."* Cap. C. X.; and the readers who may take the trouble to compare the contents of that chapter with the succeeding observations, will be convinced that all the more important arguments for the permanently valuable, and against the untenable or greatly over-estimated principles of Darwinism are to be found in the first edition of my "Phil. d. Unb." As, however, the arguments are there rather briefly hinted at, and their systematic connection slight; and as Darwinism has now become quite the fashion, I think the following essay opportune. It is fuller and more complete than what I have before written on the subject, though it is condensed as much as possible, and omits the consideration of all questions of mere detail. Its object is to enable the public, by an orderly presentation of the materials necessary therefor, to form their own opinion as to the significance of Darwinism; and especially to separate, in a manner intelligible to the unlearned, the group of theories and principles contained in Darwinism; and finally to indicate, by philosophical arguments, the proper standpoint for one desirous to comprehend the subject.

II. THE IDEAL AND THE GENEALOGICAL RELATIONSHIP OF TYPES.

The sciences which have organic nature for their subject have one common characteristic, which, in one way or another affects each of them. This characteristic is that all types of the animal and of the vegetable kingdoms possess a certain likeness or relationship between themselves; and that they, when arranged according to the degrees of their relationship, form a connected system which, precisely because it is not imposed upon concrete phenomena, in an artificial or violent manner, but takes its origin from them, is called a natural system. Botany and zoology, for instance, have always sought to derive this natural system from natural phenomena, and to perfect it, even in the smallest details, in a manner true to nature, that is, to fully recognize the relationship of organic types in their relative nearness or distance.

**Philosophie des Unbewusstseyns* (on the Philosophy of the Unconscious).

Even before any thought of the theory of descent, there was nothing to prevent the representation of the relationship of types in the form of a stem and its branches, and it was but natural that the system formed from the fauna and flora of the present should present many gaps in the continuity of this relationship, which can be filled with extinct species, sometimes in a truly surprising way. Palæontology served in this way to complete, as well as, by the discovery of primitive types for existing species, to enrich the natural system, without in any case transcending its limits. While the relationship of existing species arranges itself in space, and that established by palæontology in both space and time, it would yet be entirely premature, in the latter case, to argue from a post hoc to a propter hoc, from a temporal to a causal sequence. Even the discovery that the development of animals in embryo (it is not the case with plants) passes through a morphological gradation, which corresponds with the essential features of the natural system, can, of itself, by no means force us to abandon the conception of the natural system as one of purely ideal relationship; and to assume a real genealogical connection; all the less, as the analogy of the transitions in the development of the embryo with the higher transitions of the natural system, is to be regarded "*cum grano salis*," since it not only presents great breaks, but the conditions of the development of embryonic and of independent life are so different that they exclude all substantial agreement. Palæontology has taught us that the kingdom of organic nature, regarded as a whole, has developed itself from simple beginnings, by gradual extension; while, from time to time, higher types appeared and were added to the sum of those already existing; the assumption, however, of a repetition of the macrocosmical development in the microcosmical embryo of the individual, would seem to be, in no way, demanded by our conception of an ideally systematic relationship of types, until from some other quarter more cogent reasons could be adduced for so doing. This conception of relationship as purely ideal is greatly strengthened by two important considerations: first, that of the obviously ideal character of the relationship of types in the mineral kingdom and of human products; and secondly, that of the interlacing of the branches of the tree representing the natural system, that is, of the many-sidedness of the relations in each type.

The analogy of the mineral kingdom, seems from the fact that

it is usually co-ordinated, as a third, with the animal and vegetable kingdoms, of more weight than by reason of the essential difference between organic and inorganic nature, it really is, a difference, indeed, which the mechanical way of looking at the word, involved in Darwinism, tends to remove. In the mineral kingdom, also, we have to do with types, in forms of crystalization, even in what would seem to be amorphous, which just as well as the organic, can be arranged in a natural system, according to the degrees of their relationship; and yet it will occur to no one to conceive, in this instance, a genealogical development of the more complicated types from the simpler.

(To be continued).

POSSIBILITY AND NECESSITY OF APPLYING MATHEMATICS IN PSYCHOLOGY.

Translated from the German of J. F. Herbart, by H. HAANEL.

[Herbart's essay on the "Possibility, &c., &c.," consists of a paper read before a scientific body, and a preface and notes which were added afterwards. The notes are longer than the paper itself, and the preface partly polemic. The allusion, at the end of the essay, to natural philosophy, is too brief to be satisfactory.

Whatever else may be thought of the essay, it is the best introduction to the mathematical part of his psychology written by Herbart, and it has, in my mind this peculiar merit, that if we take the contradictory opposite of every one of his positions, we get a pretty clear idea of the relation between Algebra and Hegel's method, and this is to be expected, because Herbart's metaphysics furnish the most exhaustive indirect argument against the supremacy of the principle of identity and in favor of the dialectic method, if used in the same manner.—TRANS.].

To the most matured and most earnest faith that this very undertaking, to which I have devoted not only the following essay, but my very best efforts for years, is to be classed among the most necessary and most urgent enterprises that ever can be proposed to the scientific world, there is joined the consciousness—and it is sometimes quite disheartening—that I must esteem myself happy, if I but succeed in commencing a work, the fruitful development of which has necessarily to be left to others.—[From the preface].